

CLAIMS

What is claimed is:

1 1. A parallel processing network in which one or more processes can be spawned,
2 comprising:
3 a plurality of computers coupled together by a communication link; and
4 process spawning logic included in one of said plurality of computers that automatically
5 spawns processes in response to user specified criteria.

Sub 1 2. The parallel processing network of claim 1 wherein the communications link includes a
2 switch.

1 3. The parallel processing network of claim 1 wherein the user specified criteria includes a
2 number of processes the spawning logic should spawn.

1 4. The parallel processing logic of claim 3 wherein the user specified criteria also includes a
2 model parameter.

1 5. The parallel processing logic of claim 3 wherein the user specified criteria also includes a
2 maximum number of CPUs to be used per machine to execute processes.

1 6. The parallel processing network of claim 5 wherein each of the plurality of computers
2 includes a CPU and the model parameter refers to the type of CPU.

1 7. The parallel processing network of claim 3 wherein the user specified criteria includes a
2 resource parameter.

1 8. The parallel processing network of claim 7 wherein each of said plurality of computers
2 includes a network interface and the resource parameter refers a type of network interface.

1 9. The parallel processing network of claim 1 wherein said process spawning logic compares
2 the user specified criteria to network features.

1 10. The parallel processing network of claim 9 wherein the network features are maintained in
2 a process scheduler included in one of said plurality of computers.

1 11. The parallel processing network of claim 9 wherein the network features include an
2 identification of which of said plurality of computers is operational and which are nonoperational
3 and the spawning logic.

1 12. The parallel processing network of claim 9 wherein each of said plurality of computers
2 includes a CPU and the network features include the model of CPU.

1 13. The parallel processing network of claim 9 wherein each of said plurality of computers
2 includes a network interface resource and the network features include the type of network
3 interface resource.

1 14. The parallel processing network of claim 9 wherein the user specified criteria includes a
2 number of processes to be spawned and, if said spawning logic determines there are insufficient
3 network features to spawn processes in accordance with the user specified criteria, the spawning
4 logic spawns fewer processes than the user specified number of processes.

1 15. A parallel processing network, comprising:
2 a plurality of processors coupled together by a communications link;
3 a process scheduler accessible by at least one of said processors, said process scheduler
4 maintains a list of network features;
5 spawning logic coupled to said process scheduler, said spawning logic receives a set of
6 parameters from a user that determine how processes are to be spawned by the root machine, the
7 set of parameters including a user desired number of processes to be spawned, said spawning logic
8 determines whether sufficient network features are available to permit the user desired number of
9 processes to be spawned in accordance with the user specified parameters.

1 16. The parallel processing network of claim 15 wherein the user parameters include a
2 particular model of processor to which the processes are to be spawned.

1 17. The parallel processing network of claim 16 wherein the user parameters include a
2 particular type of a network resource.

1 18. The parallel processing network of claim 17 wherein the spawning logic determines
2 whether sufficient network features are available to permit the user desired number of processes to
3 be spawned by accessing the process scheduler to read the list of network features.

1 19. The parallel processing network of claim 17 wherein the user parameters include a
2 maximum number of CPUs to use per machine for spawning processes.

1 20. A computer readable storage medium for storing an executable set of software instructions
2 which, when inserted into a host computer system, is capable of controlling the operation of the host
3 computer, said software instructions being operable to automatically spawn parallel processes in a
4 parallel processing network, comprising:

5 a means for receiving user specified criteria;

6 a means for reading a process scheduler to access a list of features associated with the
7 parallel processing network;

8 a means for comparing the list of network features to the user specified criteria; and

9 a means for spawning processes.

1 21. The computer readable storage medium of claim 20 wherein the user specified criteria
2 includes a user desired number of processes to be spawned and said means for spawning processes
3 includes a means for spawning the user desired number of processes if said means for comparing
4 determines that the parallel processing network has sufficient features in accordance with the user
5 specified criteria.

1 22. The computer readable storage medium of claim 21 wherein said means for spawning
2 processes includes spawning fewer than the user desired number of processes if said means for
3 comparing determines that the parallel processing network has insufficient features in accordance
4 with the user specified criteria.

1 23. The computer readable storage medium of claim 21 wherein said means for spawning
2 processes includes spawning fewer than the user desired number of processes if said means for
3 comparing determines that the parallel processing network has insufficient CPUs to spawn the user
4 desired number of processes.

1 24. A method of creating processes in a multi-processor network, comprising:

2 (a) receiving criteria that determine how the processes are to be created, the criteria
3 including a desired number of processes to be created;

4 (b) comparing the criteria to a database of network features to determine if there are a
5 sufficient number of processors to accommodate the desired number of processes; and

6 (c) creating processes in accordance with step (b).

1 25. The method of claim 24 wherein step (c) includes creating the desired number of processes
2 if step (b) indicates that the criteria can be met with a number of processors equal to the desired
3 number of processes.

1 26. The method of claim 24 wherein (c) includes creating processes fewer in number than the
2 desired number of processes if step (b) indicates that the criteria cannot be met with a number of
3 processors equal to the desired number of processes.

1 27. The method of claim 25 wherein step (a) includes receiving criteria that also include a
2 model of processor and a resource type for running processes.

1 28. The method of claim 27 wherein the resource type includes a network interface resource
2 type.

1 29. A method for spawning processes in a multiprocessor network, comprising:
2 specifying whether processes are to be spawned automatically to match a set of criteria or spawned
3 in accordance with a process group file;
4 spawning processes to match the criteria if automatic spawning is specified in step (a);
5 spawning processes in accordance with the process group file if so specified in step (a).

1 30. The method of claim 29 further including determining whether the multiprocessor network
2 matches the set of criteria if automatic spawning is specified in step (a).